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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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20350	7590	03/07/2006	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			COLON SANTANA, EDUARDO	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 03/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/626.123

Applicant(s)

MAEKI, AKIRA

Examiner

Eduardo Colon Santana

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-24 is/are allowed.
- 6) ☒ Claim(s) 1-10 and 12-17 is/are rejected.
- 7) ☒ Claim(s) 11, 18-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/04/2004.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *Detailed Action.*

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 3/04/2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application (see attached form PTO 948). Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

3. Figures 3 and 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference

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sign(s) mentioned in the description: In page 10, lines 28, 29 -- items (802 and 806); In page 13, lines 11, 13-15 -- items (902, 904, 910 and 912). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities: In page 6, line 22, "transmitter 202" should say "302".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) The invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the

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international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-5, 8-10 and 12-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Glen et al. U.S. Patent No. 6,763,282.

Referring to claims 1, 3-5 and 8, Glen et al. discloses a method and system for controlling a robot (see all figures and respective portions of the specification). Glen et al. depicts in figures 9-12 an automaton (robot 902) configured to perform a task. Glen et al. further discloses the use of impulse radio technology (a type of ultra wideband technology UWB) as a communication interface to communicate positional information (transmit and receive information) with one or more anchor (reference point 1002) provided within a giving environment (i.e. a room), the positional information enabling generation of mapping (track) information of the giving environment (see figure 11 and Col. 18-22). Glen et al. discloses in addition a control station (904), which includes a controller (not shown) that receives and/or transmits the impulse radio data that controls the actions of the robot, this control station can be located inside or outside the robot (902) (i.e. remote docking system). With respect to the motor to provide mobility and the controller to process the data and to control the motor of the automaton (robot 902), this is well known in the art of mobile robots. It is also well known to include memory slots (RAM or ROM) within a control system to store information that later will be used to perform a particular task.

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As to claim 2, Glen et al. discloses the use of sensors (1006) that may have many functions and can use many techniques to obtain sensor related information (see Col. 20, lines 17-22 and lines 39-43).

Referring to claim 9, Glen et al. discloses that after determining the current position of the robot (902) the robot is synchronized, and begins performing its task in the given environment using the mapping (track) information (see figures 11, 12 and Col. 22, lines 14-62).

As to claim 10, one of the advantages of having reference points using (UWB ultra wideband technology) is that by using UWB they are capable of high bandwidth and multi-channel performance (see Col. 19, lines 41-42).

Referring to claim 12, Glen et al. describes the mapping (track) information to include the reference points (1204) in figure 12, as providing positional information on one or more objects within a particular area (see Col. 22, line 63 to Col. 23, line 65).

As to claims 13, 14 and 17, the method steps are inherent in the product structure of claims 1-5 and 8-10 above. Further discussion is omitted.

Referring to claims 15 and 16, Glen et al. discloses that mapping (track) information provided from the robot (902) and an identification reader (1202) includes the capabilities of impulse radio technology (UWB) to locate physical assets (1200) (obstacles). See figure 12 and Col. 23, lines 15-25.

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Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Glen et al. in view of Jones et al. U.S. Patent No. 6,690,134.

As to claims 6 and 7, Glen et al. addresses all the limitations of claims 1-5 above, but does not explicitly describe that the automaton (robot 902) is an automatic cleaner that performs the tasks of sweeping, vacuuming, or mopping. However, Jones et al. discloses a method and system for a robot localization and confinement in which the automaton is an automatic cleaner that performs the task of sweeping, vacuuming or mopping (see respective figures). It would have been obvious to one of ordinary skill in the art at the time of the invention to have an automaton as an automatic cleaner as taught by Jones et al. within the teaching of Glen et al. for the purpose/advantages of improving the reliability of the task to be performed (i.e. sweeping, vacuuming or mopping) if the position of the automaton is known.

Allowable Subject Matter

8. Claims 21-24 are allowed.

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9. Claims 11 and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach or fairly suggest with respect to claim 21, a method for using an automaton, wherein the control of performing a first task defined by a plurality of reference points includes the steps of generating a first mapping information of the first area having information on a location of a first obstacle provided within the first area, thereafter to navigate and perform a second task within the first area and then generating second mapping information if a second obstacle is encountered while performing the second task. With respect to claim 11, the prior art does not disclose alone or in combination the fact that the reference points are used to define a second area within the environment that is excluded from the first area, so that the task is not performed within the second area. With respect to claims 18-20, the prior art fails to teach or disclose a second mapping information including the first task and updating the first mapping information when a given obstacle is encounter; neither categorizing the given obstacle as a temporary or stationary obstacle.

Conclusion

11. The prior art made of record in form 892 and not specifically relied upon is considered pertinent to applicant's disclosure to further show the state of the art.

See in particular U.S Patent Application 2004/0111184 A1 to Chiappetta et al., which discloses a navigational control system for a robotic device.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eduardo Colon Santana whose telephone number is (571) 272-2060. The examiner can normally be reached on Monday thru Thursday 6:30am - 5:00pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula A. Bradley can be reached on (571) 272-2800 X.33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center at 866-217-9197.



Eduardo Colon Santana
Examiner
Art Unit 2837

ECS
February 28, 2006



Bentsu Ro
Primary Examiner

WHAT IS CLAIMED IS:

1 1. An automaton configured to perform a task, the automaton comprising:
2 a communication interface to communicate positional information with one or
3 more anchor points provided within a given environment, the positional information enabling
4 generation of mapping information of the given environment;
5 a motor to provide the automation with mobility;
6 a memory to store the mapping information; and
7 a controller to control the motor to enable the automaton to perform the task in
8 the given environment using a task route that has been generated using the mapping
9 information.

1 2. The automaton of claim 1, further comprising:
2 a sensor to detect an object provided within the given environment.

1 3. The automaton of claim 1, wherein the controller is configured to
2 generate the mapping information using the positional information.

1 4. The automaton of claim 1, wherein the communication interface and
2 anchor points are Ultra Wide Band transceivers.

1 5. The automaton of claim 4, wherein the mapping information is
2 generated remotely from the automaton.

1 6. The automaton of claim 1, wherein the automaton is an automatic
2 cleaner.

1 7. The automaton of claim 1, wherein the automaton is configured to
2 perform at least one of the following tasks: sweeping, vacuuming, mopping, mowing, and
3 painting.

1 8. An automated system for performing a task in a given environment, the
2 system comprising:
3 a plurality of anchor points configured to transmit and receive Ultra Wide
4 Band ("UWB") signals, the plurality of anchor points provided within the environment to
5 define a first area wherein the task is to be performed; and
6 an automaton configured to perform the task, the automaton including:

7 a communication interface configured to transmit and receive the
8 UWB signals to and from the anchor points,
9 a controller configured to process the UWB signals and generate
10 mapping information of the environment using the UWB signals,
11 a memory to store the mapping information, and
12 a motor configured to provide the automation with mobility.

1 9. The system of claim 8, wherein the controller is configured to generate
2 a task route for performing the task in the given environment using the mapping information.

1 10. The system of claim 8, wherein the anchor points are provided with
2 unique identification numbers.

1 11. The system of claim 8, wherein the anchor points are used to define a
2 second area within the environment that is excluded from the first area, so that the task is not
3 performed within the second area.

1 12. The system of claim 8, wherein the mapping information includes a
2 task route for performing the task, or positional information on one or more objects provided
3 within the first area, or both.

1 13. A method for performing a task within an environment using an
2 automaton, the method comprising:
3 generating first mapping information of a first area defined within the
4 environment using positional information relating to the first area, where the positional
5 information is obtained by using signals exchanged between the automaton and one or more
6 anchor points provided within the environment; and
7 controlling the automaton to navigate within the first area to perform the task
8 using second mapping information of the first area.

1 14. The method of claim 13, wherein the anchor points are provided within
2 the environment to define the first area.

1 15. The method of claim 13, further comprising:
2 determining position of an obstacle encountered within the first area using a
3 communication interface provided in the automaton.

1 16. The method of claim 15, wherein the positional information is derived
2 using the Ultra Wide Band technology, wherein the positional information includes
3 information about the position of the obstacle.

1 17. The method of claim 13, further comprising:
2 generating a first task route using the first mapping information, the first task
3 route being used by the automaton to navigate within the first area to perform the task.

1 18. The method of claim 17, wherein the second mapping information
2 includes the first task route.

1 19. The method of claim 17, further comprising:
2 updating the first mapping information when a given obstacle is encountered
3 by the automaton while performing the task within the first area; and
4 re-routing the automaton based on the updated first mapping information.

1 20. The method of claim 19, further comprising:
2 categorizing the given obstacle as a temporary obstacle when the given
3 obstacle is first encountered; and
4 categorizing the given obstacle as a stationary obstacle when the given
5 obstacle is found in the same location while the automaton is performing the task at a later
6 time.

1 21. A method for using an automaton, the method comprising:
2 controlling the automaton to perform a first task within a first area defined by
3 a plurality of anchor points, the anchor points configured to transmit positional information to
4 the automaton;
5 generating first mapping information of the first area using the positional
6 information received from the anchor points, the first mapping information including
7 information on a location of a first obstacle provided within the first area;
8 thereafter, controlling the automaton to navigate and perform a second task
9 within the first area using the first mapping information; and
10 generating second mapping information if a second obstacle is encountered
11 while performing the second task.

1 22. The method of claim 21, further comprising:
2 determining power available to the automaton, wherein the second mapping
3 information is generated according to the available power.

1 23. The method of claim 21, further comprising:
2 determining power available to the automaton;
3 calculating whether the power determined to be available is sufficient to
4 complete an initial task route obtained according to the first or second mapping information;
5 and
6 generating a substitute task route if the calculation indicates that the available
7 power is insufficient to perform the initial task route.

1 24. The method of claim 23, wherein the substitute task route ends
2 proximate a power supply.